Bit $5=2^5=32$

Bit $6=2^6=64$

MSB Bit $7=2^7=128$

Therefore, the byte (8 bits) '01111010' is calculated by the computer (from right to left) as $2+8+16+32+64$ which equals 122. This is the ASCII code for the letter "z". Using this system, the numbers 0–127 (0 through 2^7-1) represent a total of 128 valid ASCII codes. Table 1 is a representation of the Braille character set.

Treating Braille dots 1–6 as a sequence of 6 bits with dot 1 being the least significant bit (LSB, bit 0) and bit 6 as the most significant bit (MSB, bit 5) we can form a numeric representation for each Braille character. Since 2 of the bits are not used, (6 and 7) bit 6, if set, will indicate a "capital letter", bit 7 will indicate a "number". This is required because Braille uses the same codes for some characters. When printed, a "case" symbol (letter, capitals, number) will precede the character that is changing case. Table 2 represents the ASCII to Braille conversion.

TABLE 1

BRAILLE CHARACTER SET DESCRIPTION

1 o o 4 This is the basic Brialle cell. The dots are referenced 1–6
2 o o 5 as indicated.
3 o o 6

LINE 1:

o ·	o ·	o o	o o	o ·	o o	o o	o ·	· o	· o
· ·	o ·	· ·	· o	· o	o ·	o o	o o	o ·	o o
· ·	· ·	· ·	· ·	· ·	· ·	· ·	· ·	· ·	· ·
a	b	c	d	e	f	g	h	i	j
1	2	3	4	5	6	7	8	9	0

Line 1 consists of the first 10 letters of the alphabet formed by the upper dots (1,2,4,5) of the Braille cell. When preceded by the numeric indicator these cells have the indicated numeric value.

LINE 2:

o ·	o ·	o o	o o	o ·	o o	o o	o ·	· o	· o
· ·	o ·	· ·	· o	· o	o ·	o o	o o	o ·	o o
o ·	o ·	o ·	o ·	o ·	o ·	o ·	o ·	o ·	o ·
k	l	m	n	o	p	q	r	s	t

Line 2 adds dot 3 to each of the cells in line 1.

LINE 3:

o .	o .	o o	o o	o .	o o	o o	o .	. o	. o
. .	o .	. .	. o	. o	o .	o o	o o	o .	o o
o o	o o	o o	o o	o o	o o	o o	o o	o o	o o
u	v	x	y	z	and	for	of	the	with

Line 3 adds dots 3 and 6 to each of the cells of the first line.

LINE 4:

o .	o .	o o	o o	o .	o o	o o	o .	. o	. o
. .	o .	. .	. o	. o	o .	o o	o o	o .	o o
. o	. o	. o	. o	. o	. o	. o	. o	. o	. o
ch	gh	sh	th	wh	ed	er	ou	ow	w

Line 4 adds dot 6 to each of the cells in the first line. Also, the letter "w" was added here by Braille to meet the needs of the English language.

LINE 5:

. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
o .	o .	o o	o o	o .	o o	o o	o .	. o	. o
. .	o .	. .	. o	. o	o .	o o	o o	o .	o o
,	;	:	.	en	!	( )	"?	in	"

Line 5 represents the patterns of line 1 in the lower portion of the cell, using dots 2,3,5,6. Most of these characters have punctuation values.

LINE 6:

. o	. o	. o	. o	. .	. .
. .	. .	. o	. o	. .	. .
o .	o o	o o	o .	o .	o o
/	ing	# number	ar	'	-

Line 6 is formed with dots 3,4,5,6.

LINE 7:

. o	. o	. o	. .	. o	. .	. .
. .	. o	. o	. o	. .	. o	. .
. .	. .	. o	. .	. o	. o	. o
		used for two cell contractions		italic sign; decimal point	letter sign	capital sign

Line 7 is formed of dots 4,5,6.

TABLE 2

ASCII TD BRAILLE CONVERSION

Character	ASCII Decimal Value	Braille Decimal Value	Braille Binary Value	Character	ASCII Decimal Value	Braille Decimal Value	Braille Binary Value
space	032	000	00000000	P	080	079	01001111
!	033	022	00010110	Q	081	095	01011111
"	034	052	00110100	R	082	087	01010111